IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(S)	:	Biddulph
TITLE	:	BLACK TRIVALENT CHROMATE CONVERSION COATING
APPLICATION NO.	:	10/774,559
FILED	:	February 9, 2004
CONFIRMATION NO.	:	8972
EXAMINER	:	Lous L. Zheng
ART UNIT	:	1793
ATTORNEY DOCKET NO.	:	PVOZ 200015US01

TRANSMITTAL OF APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Commissioner for Patents
P.O. Box 1450
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Respectfully submitted,

Fay Sharpe LLP

November 8, 2010
Date

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PATENT APPLICATION

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BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:
Clifford F. Biddulph

Application No.: 10/774,559

Confirmation No. 8972
Examiner: Lois L. Zheng

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Docket No.: PVOZ 200015US01

Title: BLACK TRIVALENT CHROMATE CONVERSION COATING

BRIEF ON APPEAL

Appeal from Group 1793

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TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is Pavco, Inc., by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 014977, Frame 0679.

II. RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-6, 8-9, and 19-23 are on appeal.

Claims 1-6, 8-9, and 19-23 are pending.

Claims 1-6, 8-9, and 19-23 are rejected.

Claims 7 and 10-18 are canceled.

IV. STATUS OF AMENDMENTS

An Amendment After Final Rejection was filed on September 7, 2010. By an Advisory Action dated September 17, 2010, it was indicated that the request for reconsideration did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The invention of claim 1 is directed to an aqueous acidic black chromate conversion coating solution for use on zinc and zinc alloy. The aqueous acidic black chromate conversion coating comprises trivalent chromium ions in a concentration of about 0.02M to about 0.2M (paragraph [0014]), phosphorous anions (paragraph [0015]), anions selected from the group of sulfate ions, nitrate ions, and combinations thereof (paragraph [0016]), at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII (paragraph [0017]), an organic chelate selected from the group consisting of carboxylic acids, polycarboxylic acids, and combinations thereof (paragraph [0018]). A concentration of the sulfate ions when present comprise about 0.02 to about 0.5M (paragraph [0016]) and a concentration of the nitrate ions when present comprise about 0.06 to about 0.6M (paragraph [0016]). The organic chelate is present in a concentration of from about 0.02M to about 0.3M (paragraph [0018]) and the aqueous acidic black chromate conversion coating solution produces a single layer black chromate conversion coating.

The invention of claim 19 is directed to an aqueous acidic chromate conversion coating solution. The aqueous acidic chromate conversion coating solution comprises trivalent chromium ions in a concentration of from about 0.02M to about 0.2M (paragraph [0014]), phosphorous anions in a concentration of from about 0.05M to about 0.75M (paragraph [0015]), anions selected from the group consisting of sulfate ions, nitrate ions, and combinations thereof (paragraph [0016]), a metal selected from the group consisting of iron, cobalt, nickel, copper and combinations thereof (paragraph [0017]), and an organic chelate selected from the group consisting of carboxylic acids and polycarboxylic acids (paragraph [0018]), the organic chelate being present in an amount of from about 0.02M to about 0.3M (paragraph [0018]). A concentration of the sulfate ions when present comprise about 0.02 to about 0.5M (paragraph [0016]) and a concentration of the nitrate ions when present comprise about 0.06 to about 0.6M (paragraph [0016]). The aqueous acidic chromate conversion coating solution produces a single layer black chromate conversion coating.

The invention of claim 20 is directed to an aqueous acidic black chromate conversion coating solution for zinc and zinc alloys. The aqueous acidic black chromate conversion coating comprises trivalent chromium ions in a concentration of about 0.02M to about 0.2M (paragraph [0014]), phosphorous anions (paragraph [0015]), anions selected from the group of sulfate ions,

nitrate ions, and combinations thereof (paragraph [0016]), and at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII (paragraph [0017]). A concentration of the sulfate ions when present comprise about 0.02 to about 0.5M (paragraph [0016]) and a concentration of the nitrate ions when present comprise about 0.06 to about 0.6M (paragraph [0016]). An organic chelate is present in a concentration of from about 0.02M to about 0.3M (paragraph [0018]) and the aqueous acidic black chromate conversion coating solution is applied to the zinc or zinc alloy in a single layer.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

Claims 1-6, 8-9 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/07902 (WO'902).

Claims 1-6, 8-9 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (U.S. 6,719,852), in view of WO'902.

VII. ARGUMENT

A. The Subject Claims Patentably Distinguish Over the Cited References

1. *Claims 1-6, 8-9, and 19-23 are Non-Obvious Over WO'902*

Independent claim 1, and similarly independent claims 8 and 20, is directed to an aqueous acidic black chromate conversion coating solution for use on zinc and zinc alloy. The coating solution comprises trivalent chromium ions in a concentration of about 0.02M to about 0.2M, phosphorous anions, anions selected from the group of sulfate ions, nitrate ions, and combinations thereof, at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII, and an organic chelate selected from the group consisting of carboxylic acids, polycarboxylic acids, and combinations thereof. A concentration of the sulfate ions when present comprises about 0.02 to about 0.5M and a concentration of the nitrate ions when present comprises about 0.06 to about 0.6M. The organic chelate is present in a concentration of from about 0.02M to about 0.3M and the aqueous acidic black chromate conversion coating solution produces a single layer black chromate conversion coating. It is respectfully submitted that WO'902 does not teach or suggest each limitation as recited in the subject claims.

Particularly, WO'902 fails to teach or suggest a single layer black chromium coating solution. Rather, the first paragraph of WO'902 specifically recites that an anticorrosive black coating formed by two layers on a zinc alloy and a procedure for making this anticorrosive coating. WO'902 states, "[t]he anticorrosive coating produced on the alloy of zinc consists of superposition of two individual coatings..." Therefore, the entirety of the coating taught in WO'902 comprises two layers that each imparts important functions to the coating as a whole. The Examiner argues that since the instant claims do not require a specific degree of blackness in the chromate coating, one of ordinary skill in the art would have expected with success that the first coating solution as taught by WO'902 would have also formed a black chromate coating. The Examiner submits that this is due to the similarity of the first coating solution taught by WO'902 to the claimed coating solution and also comprises phosphate, Fe, Co, and Ni, which are components known to contribute to the formation of a black coating. Appellant respectfully disagrees.

The anticorrosive black coating for zinc alloys as taught by WO'902 is directed to overcoming the various disadvantages referred to in the opening paragraphs. Specifically, the coating provides a black anticorrosive coating on a zinc layer that remains present after heating for one hour at 120 degrees C or until 150 degrees C or in some cases beyond. The method is specifically characterized as including **two stages**, each stage producing a separate layer, while the coating as a whole consists of **both layers**. The first stage treats the zinc alloy with a layer of Cr3+ solution, and the second stage treats the zinc alloy passivate with an aqueous solution containing an organic polymer, metallic oxide anticorrosive, and black pigment. After the two stages are complete, the zinc alloy is dried and treated with hot air.

Appellant submits that the Examiner's position that one skilled in the art would, based on the teaching of WO'902, disregard the two-stage process expressly taught as forming the coating layer and instead only utilize only the first stage, is unreasonable and displays a clear reliance on hindsight. As noted by the Federal Circuit, "[t]he invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time." Further, "it is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious...one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention." *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). It is Appellant's position that, but-for exposure to Appellant's own disclosure, the Examiner would never have read the teaching of WO'902 as forming a single layer black chromate conversion coating, such as that presently claimed. The Examiner has failed to point out any teaching or slight suggestion in WO'902 that would lead one skilled in the art to eliminate an **entire stage of a two-stage process** as suggested. The only motivation to do so is found in Applicant's own disclosure. This is a clear implementation of hindsight and is therefore an **improper** basis for an obviousness rejection.

Additionally, as acknowledged by the Examiner, the second layer of WO'902 contains the black pigments along with metallic oxide anticorrosives, and organic polymers. After describing the organic polymers and metallic oxide anticorrosives, WO'902 teaches that the introduction of these materials in the anticorrosive coating had the advantages over previous SiO_2 solutions of corrosion protection and maintenance of the black color over time and uniformity. Appellant submits that this is further support against dissecting the teaching of

WO'902, since the second layer is clearly taught as being a vital component of the overall coating.

Moreover, the Examiner appears to reason that since the present claims do not specify a certain degree of blackness and the black pigment included in the second layer may just be to enhance the degree of blackness of the coating film, the black pigment is not a negative teaching against the formation of a less black, but still black, coating layer formed by the first coating solution that is substantially similar to the claimed coating solution. However, Appellant submits that the question is not whether the first layer is capable of providing a black appearance without the addition of the pigments in the second layer, the question is whether, based on the teaching of WO'902, one skilled in the art would read the second layer as not being important to the coating and would be content with both the anti-corrosion quality and the color quality of the first layer. Appellant submits that the answer is no, since the second layer contains both anti-corrosion materials and black pigment. The inclusion of these materials would indicate to one skilled in the art that the first layer of WO'902 is insufficient alone in at least color and anticorrosive properties.

Further, the Examiner maintains the position that WO'902 teaches using sulfuric acid and/or nitric acid to adjust pH and therefore it would have been obvious to one skilled in the art to have manipulated them via routine optimization in order to control pH of the coating solution. Appellant respectfully disagrees and maintains that since the pH range taught by Appellant (between 0.5 and 3.5, and more preferably between 1.2 and 2.5) is well within the range disclosed in WO'902 (between 1 and 4 and preferably between 1 and 3), one skilled in the art would have no motivation or reason whatsoever to alter the amounts of sulfuric and/or nitric acid taught in WO'902 in order to achieve a desired pH, since the desired pH is already achieved. Appellant recognizes the established principles regarding result-effective variables, wherein it is held that optimization such variables can be achieved by routine experimentation. However, Appellant submits that such is not the case in this situation. The Examiner appears to contend that the amount of sulfuric acid and/or nitric acid may be adjusted by routine optimization to reach a desirable pH. However, as is demonstrated above, both the subject claims and WO'902 currently achieve overlapping ranges, which would lead one to believe that the current ranges are the desirable range. Accordingly, Appellant is rather unsure as to what the motivation would be to one skilled in the art to further adjust the amount of sulfuric acid and/or nitric acid to control

pH as suggested by the Examiner. Appellant submits that since adjusting the pH does not provide the motivation for adjusting the amounts of sulfuric and/or nitric acid, the only motivation Appellant can imagine is that from Appellant's own invention. This is yet another instance of the improper use of hindsight reconstruction.

Appellant therefore submits that the Examiner has failed to present a proper prima facia case of obviousness. As such, Appellant respectfully requests the withdrawal of the rejection of claims 1-6, 8-9, and 19-23.

2. The Rejection of claims 1-6, 8-9, and 19-23 Over Oshima and WO'902 is Erroneous

Claims 1-6, 8-9, and 19-23 are further rejected as being obvious over Oshima and WO'902. Particularly, it is submitted that Oshima teaches the claimed aqueous acidic coating solution; however, does not teach that the coating solution can produce a black chromate coating as presently claimed. Appellant once again maintains that since each of Oshima and WO'902 disclose the addition of pigments or dies in a topcoat, the combination of Oshima and WO'902 would necessarily result in a **two layered coating with black pigment in the top layer**. The Office Action maintains that there are various coating components, other than a black pigment, which can be added to the trivalent chromium solution of Oshima to make the resulting coating black, such as phosphate, Fe, Co, and Ni ions that are each added in the first layer. Appellant respectfully disagrees.

Oshima is directed to a solution for forming a corrosion resistant trivalent chromate conversion film on zinc or zinc alloy and, when further improvement is desired, a top coat may be included that can incorporate a dye in order to pigment the topcoat film. Accordingly, Appellant submits that although there are various coating components that can be added into the solution of Oshima to make the coating black, the explicit teaching of WO'902 would **not** motivate one skilled in the art to do so. Oshima explicitly states that **if** further improvement is desired, a dye may be added to the top coat. Providing a black color would be an improvement. Therefore, if one skilled in the art desired a black coating, certainly the skilled artisan would adhere to this teaching. Furthermore, if the skilled artisan was additionally faced with the teachings of WO'902, this motivation to add pigment in a top coat would be furthered, since WO'902 also teaches including black pigment in a top layer. Appellant submits that regardless the type of pigment, be it dye, Fe, Co, Ni, or phosphate, Oshima nonetheless teaches that

improvements, such as color, are to be added in a topcoat, **not** in the chromate conversion film. The Examiner has yet to provide any reasoning as to why one skilled in the art would disregard the explicit teachings of both Oshima and WO'902, namely to include any dye in the top coat, and instead implement black pigmenting components in the first layer.

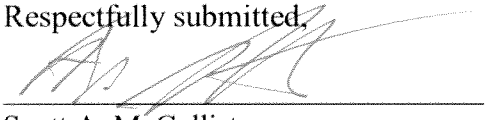
In light of at least the above, it is clear that the teachings of WO'902 and Oshima, individually or in combination, do not teach or suggest the present invention as taught in independent claims 1, (along with claims 2-6 and 8-9 that depend therefrom) 19, and 20 (along with claims 21-23 that depend therefrom). Accordingly, withdrawal of the rejection and allowance of the claims is earnestly solicited.

CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1-6, 8-9, and 19-23 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of the claims.

Date: October 8, 2010

Respectfully submitted,



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APPENDICES

VIII. CLAIMS APPENDIX:

1. (Previously Presented) An aqueous acidic black chromate conversion coating solution for use on zinc and zinc alloy comprising:

trivalent chromium ions in a concentration of about 0.02M to about 0.2M;

phosphorous anions;

anions selected from the group of sulfate ions, nitrate ions, and combinations thereof;

at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII;

an organic chelate selected from the group consisting of carboxylic acids, polycarboxylic acids, and combinations thereof,

wherein a concentration of said sulfate ions when present comprise about 0.02 to about 0.5M and a concentration of said nitrate ions when present comprise about 0.06 to about 0.6M;

wherein the organic chelate is present in a concentration of from about 0.02M to about 0.3M; and

wherein said aqueous acidic black chromate conversion coating solution produces a single layer black chromate conversion coating.

2. (Previously Presented) The solution of claim 1, wherein the concentration of trivalent chromium ions is from about 0.03M to about 0.07M.

3. (Previously Presented) The solution of claim 1, wherein the phosphorous anions

are present in a concentration of from about 0.05M to about 0.75M.

4. (Previously Presented) The solution of claim 1, wherein the phosphorous anions are provided by phosphorous acids or salts thereof selected from the group consisting of phosphoric acid, mono-sodium phosphate, mono-ammonium phosphate and mixtures thereof.

5. (Previously Presented) The solution of claim 1, wherein the solution comprises a transition metal selected from the group consisting of iron, cobalt, nickel, copper and combinations thereof.

6. (Previously Presented) The solution of claim 5, wherein the transition metal is present at a concentration of from about 0.005M to about 0.5M.

7. (Cancelled)

8. (Previously Presented) The solution of claim 1, wherein the organic chelate is a carboxylic acid or polycarboxylic acid selected from the group consisting of citric acid, tartaric acid, malic acid, glyceric acid, lactic acid, glycolic acid, malonic acid, succinic acid, maleic acid, oxalic acid, flutaric acid, and combinations thereof.

9. (Previously Presented) The solution of claim 1, wherein the solution has a pH of about 0.5 to about 3.5.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Previously Presented) An aqueous acidic chromate conversion coating solution comprising:

trivalent chromium ions in a concentration of from about 0.02M to about 0.2M;

phosphorous anions in a concentration of from about 0.05M to about 0.75M;

anions selected from the group consisting of sulfate ions, nitrate ions, and combinations thereof;

a metal selected from the group consisting of iron, cobalt, nickel, copper and

combinations thereof;

an organic chelate selected from the group consisting of carboxylic acids and polycarboxylic acids, the organic chelate being present in an amount of from about 0.02M to about 0.3M, and

wherein a concentration of said sulfate ions when present comprise about 0.02 to about 0.5M and a concentration of said nitrate ions when present comprise about 0.06 to about 0.6M, and wherein said aqueous acidic chromate conversion coating solution produces a single layer black chromate conversion coating.

20. (Previously Presented) An aqueous acidic black chromate conversion coating solution for zinc and zinc alloys comprising:

trivalent chromium ions in a concentration of about 0.02M to about 0.2M;

phosphorous anions;

anions selected from the group of sulfate ions, nitrate ions, and combinations thereof;

at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII,

wherein a concentration of said sulfate ions when present comprise about 0.02 to about 0.5M and a concentration of said nitrate ions when present comprise about 0.06 to about 0.6M;

wherein an organic chelate is present in a concentration of from about 0.02M to about 0.3M; and

wherein said aqueous acidic black chromate conversion coating solution is applied to said zinc or zinc alloy in a single layer.

21. (Previously Presented) The solution of claim 1 wherein the phosphorous anions consist of phosphate anions.

22. (Previously Presented) The solution of claim 1 wherein a ratio of the trivalent chromium ions to the at least one transition metal or metalloid ranges from about 0.06:1 to less than 0.5:1.

23. (Previously Presented) The solution of claim 1 wherein the chromate conversion coating is substantially free of hexavalent chromium.

IX. EVIDENCE APPENDIX

NONE

X. RELATED PROCEEDINGS APPENDIX

NONE